



ESH Program

NuMI Installation Phase

NuMI Project ESH Coordinator

Michael P. Andrews

February 12-13, 2004



Outline

- NuMI Project Installation
 - « ESH/QA Review Program
 - « ESH/QA Oversight
- SB&O Construction Phase
 - « ES&H Program Update
 - « Accident/Incident Update
- Shielding Assessment/Safety Assessment Document
- Previous Recommendations
- Summary

Tools & Resources used:

- ESH/QA Committee Charter
- ESH/QA Review Process
- ESH/QA Review Trigger Guidance
- Installation Coordination Plan
- FESHM
- Personnel Accountability & Site Access Controls
- Training
- Hazard Communication Program
- Work Planning & Toolbox Meetings
- Hazard Analysis & Mitigation
- ESH Inspections & Audits
- Lessons Learned



ESH/QA Review Process: NuMI & MINOS

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- ESH/QA review process and review trigger guidance list
 - « Documented and available to all managers on Web
 - * Includes guidance on what needs to be reviewed and how it is to be reviewed
 - * Includes process for field changes
 - « Coordinated by NuMI Project ESH Coordinator (M. Andrews)
 - « Document control process in place
- ESH/QA Review Committee and Charter
 - « Charter approved and Committee appointed by BD & PPD Heads
 - « Twelve member committee with representation from 4 Divisions/Sections with multiple disciplines (mechanical, electrical, ESH, etc.)
- NuMI Safety Reviews Table and Summary
 - « Table available on the web
 - « Working on getting hot links to most reference material
 - « Paper copies will be located in 12SW documentation room



ESH/QA Reviews Status

- Present status of NuMI ESH/QA Review Process
 - « ~49 total documents in need of review
 - * ~8 documents presently need to be developed
 - * 3 documents are presently in review by the NuMI Project
 - * 5 documents are presently being reviewed by the ESH/QA Committee
 - * 3 documents presently responding to questions from committee
 - * 0 documents presently approved and signed of by the ESH/QA committee and NuMI Project awaiting Division approval
 - * 30 documents presently fully approved and signed-off
- Present status of MINOS ESH/QA Review Process
 - « ~20 documents in need of review
 - « ~6 documents need to be developed
 - « ~3 documents presently approved ESH/QA Committee



Recent ESH/QA Reviews

- Recent ESH/QA Reviews which have been completed
 - « Green Block Lifting Fixture (tongs)
 - « T block Lifting Fixture
 - « NuMI Module Lifting Fixture
 - « Upstream Decay Pipe End Cap Lifting Fixture
 - « NuMI Horn Module Assembly/Test Stand
 - « Decay Pipe Vacuum Vessel End Caps (both)
 - « Green/Blue Block Lifting Fixture (basket)
 - « Stripline Shielding Assembly



Installation ES&H Update

- Installation Coordination Plan developed and implemented
 - « Defines Roles and Responsibilities during Installation Phase which includes the addition of a Field Safety Coordinator (J. Cassidy)
- NuMI Facility Safety Training
 - « Underground Access Procedure developed and implemented
 - « Listed on FNAL TRAIN Database (#FN0003368CR)
 - « Approximately 150 personnel presently trained
- Daily & Weekly Work Planning
 - « Hazard Analysis developed and review for all tasks
 - « Daily work planning meetings attended by all workers
 - « Daily & weekly Installation Management Team Meetings
- NuMI ESH Inspection Program
 - « Weekly with participation by NuMI, DOE, FNAL
 - « NuMI ESH Inspection Database



Accident History since October 2003

- Installation Phase
 - « A T&M contractor suffered an inguinal hernia when he was pulling on a pry bar while installing a magnet.(DART Case)



SB&O ES&H Update

- Weekly ESH & Work Planning Meetings
 - « NuMI Project ESH & progress meeting
 - « NCMO/RBI ESH & progress meeting
 - « ESH Oversight Meeting
- Hazard Analysis Program
 - « HA written on all work tasks (110 presently in place)
 - « Reviewed & accepted by NCMO
 - « Reviewed & Signed by employees prior to start of work
- ESH Training
 - « RBI & NuMI site orientations
 - « Supplemental provide by RBI: LOTO, Excavation, Fall Protection, Etc.
- NuMI ESH Inspection Program
 - « Scheduled weekly with participation by NuMI, DOE, RBI, FNAL
 - « NuMI ESH Inspection Database



Accident History since October 2003

- SB&O Phase
 - « A sub-tier electrician strained his left shoulder while installing conduit from a scissors lift. (DART Case)
 - « A sub-tier landscaper dropped a paving block on his foot causing a contusion to his big toe. (Recordable)
 - « A sub-tier Project Manager was struck by another sub-tier delivery vehicle while it was backing up causing multiple contusions and a fractured shoulder. (DART Case)
 - * Resulted in Occurrence Report



Accident History since October 2003

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- Action Taken By Fermilab
 - « Fermilab issued a stop work order on
 - * As a result of the two DART cases and a LOTO procedure violation involving the same electrical sub-tier contractor
 - « The order was lifted when the contractor proposed and implemented appropriate personnel and procedural actions.

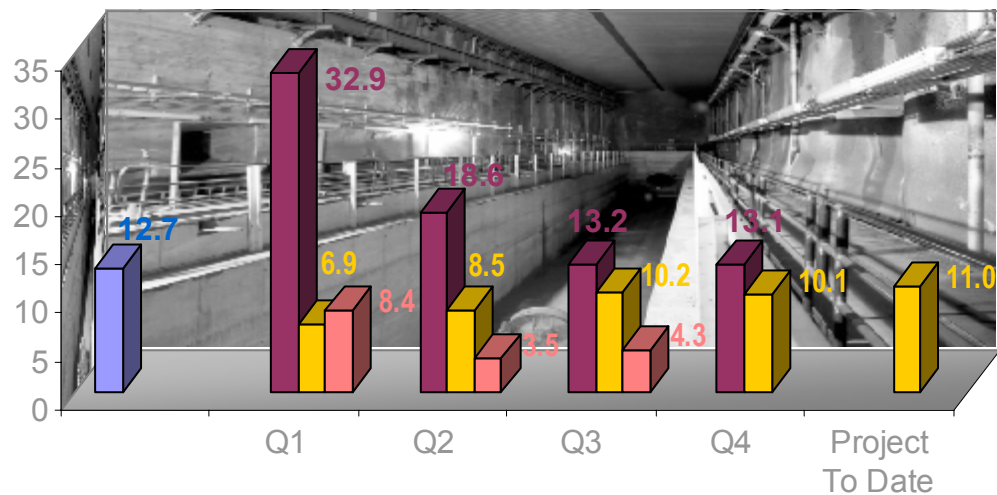


Progress On Incentives

- Four Safety/Performance Incentives (50K each)
 - « Milestone 2-3 (Missed)
 - « Milestone 4-6 (Made)
 - « Milestone 7-8 (Missed)
 - « Milestone 9-10 (Still eligible)

NuMI Accident/Incident Update

NuMI Construction Recordable Incident Rates



Recordable Incident Rates CY2000

Recordable Incident Rates CY2001

Recordable Incident Rates CY2002

Recordable Incident Rates CY2003



Response to recommendations

- DOE Review Recommendation from Dec. 2002
 - « Visit Lawrence Livermore - National Ignition Facility (NIF) to review NIF Safety Leadership Program which was utilized during their installation phase.
 - * The NuMI Project Management reviewed the NIF Safety Leadership Program and found the NuMI ESH Program to be comparable
- Fermilab Installation Team visit to SNS (Oak Ridge)
 - « Explored their safety program and its operation in detail
 - « Studying lessons learned for our situation
 - * Already implemented change to job flow control at MI65.



Shielding Assessment & Safety Assessment Document (SAD) Status/Plans

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- NuMI Safety Documents Website is set up (password protected)
 - « DOE website with finalized documentation
 - * General Reference Material, Shielding Assessment Document References, SAD References
- Process for review & approval of the Shielding Assessment and SAD (Safety Envelope, Accelerator Readiness Review) has been clarified and presented to stakeholders – have agreement
- DoE FAO (AD ES&H, PPD ES&H & ES&H Section also) part of the process from the beginning through monthly meetings/updates and the website.
- Need Shielding Assessment Approval before start SAD approval
 - « All Shielding Assessment Methodology documents have been approved.
 - « Going over draft Shielding Assessment Document with AD ES&H (Mike Gerardi) to make sure it is ready for review by AD Shielding Review committee
 - « Shielding Assessment Document – complete by 3/04 – ready for review/approval (first by AD Shielding Review Committee)



Shielding Assessment & Safety Assessment Document (SAD) Status/Plans

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- Safety Assessment Document – complete by 6/04 – ready for review/approval
 - « Meet regularly with all stakeholders (NuMI w/ DOE, ESH, AD & PPD)
 - * One SAD for NuMI & MINOS
 - « A first draft NuMI SAD has been prepared
 - * Various parts were written by the “experts”
 - * Need to read through entire document for clarity, consistency, flow AND....
 - * To determine what documentation is missing & assign remaining work
- Shielding Assessment for NuMI is a big effort and it is coming together due to good cooperation between the various divisions and sections.
- SAD is in pretty good shape and should come together quickly once the Shielding Assessment is in the review process.
- Have discussed timelines for SAD and Shielding Assessment with AD and ES&H and they are in agreement with our timelines.



Summary

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- NuMI Project ESH/QA Review Process & Documentation Control well underway and working .
 - NuMI ESH/QA Review Committee in place and active.
 - The implementation of NuMI Project ESH Program continues on in SBO Phase of work at the MINOS site.
 - The NuMI ESH Program continues on in kind during the Installation Phase of work.
 - The NuMI Shielding Assessment and Safety Assessment Documents are well underway and will be ready for approval well before commissioning.